

2 We Claim:

4 1. A hydraulically driven vehicle having all wheel
drive, which comprises:

6 (a) a frame having a power source thereon for
supplying power;

8 (b) a plurality of ground engaging wheels
attached to the frame for movably supporting the frame for
10 movement over the ground, the wheels comprising a first pair
of wheels carried adjacent a first end of the frame and at
12 least one wheel spaced on the frame from the first pair of
wheels carried adjacent a second end of the frame; and

14 (c) a hydraulic drive system for driving the
ground engaging wheels of the frame, which drive system
16 comprises:

(i) a source of pressurized fluid;
18 (ii) individual hydraulic drive
motors operatively engaged to each of the ground engaging
20 wheels of the frame; and

(iii) means for connecting the
22 hydraulic motors to the source of pressurized fluid in the
following manner:

24 the wheel drive motor(s) for the wheel(s) on the second
end of the frame are connected in series to each other, to
26 the fluid source, and to the wheel drive motors on the first
end of the frame; and

28 the wheel drive motors on the first end of the frame
are connected to each other in parallel.

30 2. A vehicle as recited in claim 1, further including
32 means operatively connected to the wheel(s) on the second
end of the frame to allow such wheel(s) to overrun the
34 hydraulic motors driving such wheel(s) when required during
turns of the vehicle.
36

2 ~~3. A vehicle as recited in claim 2, wherein such~~
4 overrunning means comprises a mechanical clutch operatively
6 connected between a drive shaft of each hydraulic motor
 driving each wheel(s) on the second end of the frame and a
 wheel hub of each wheel(s) on the second end of the frame.

8 4. A vehicle as recited in claim 3, wherein the clutch
10 unidirectionally transmits torque from the drive shaft to
 the wheel hub(s).

12 5. A vehicle as recited in claim 1, wherein only a
14 single wheel is carried on the second end of the frame to
 provide a tricycle wheel configuration on the frame.

16 6. A vehicle as recited in claim 5, wherein the first
18 end of the frame is a front end of the frame, and the second
20 end of the frame is a rear end of the frame, when the
 vehicle is travelling in a forward direction.

22 7. A vehicle as recited in claim 5, wherein the first
24 end of the frame is a rear end of the frame, and the second
 end of the frame is a front end of the frame, when the
 vehicle is travelling in a forward direction.

26 8. A vehicle as recited in claim 1, wherein a pair of
28 wheels is carried on the second end of the frame to provide
 a four wheel configuration on the frame.

30 Sub BB 9. A hydraulically driven riding mower having all
 wheel drive, which comprises:

- 32 (a) a frame having an engine;
34 (b) a plurality of ground engaging wheels
 attached to the frame for movably supporting the frame for
36 movement over the ground, the wheels comprising a first pair

of wheels carried adjacent a front end of the frame and a single rear wheel spaced on the frame from the front wheels and carried adjacent a rear end of the frame to provide a tricycle wheel configuration;

(c) a plurality of cutting units carried on the frame for mowing grass, wherein the cutting units may be raised and lowered into and out of engagement with the ground and when lowered into engagement with the ground during a mowing operation have their weight carried by the ground and not the frame; and

(d) a hydraulic drive system for driving the ground engaging wheels of the frame, which drive system comprises:

(i) a source of pressurized fluid;
(ii) individual hydraulic drive motors operatively engaged to each of the ground engaging wheels of the frame; and

(iii) means for connecting the hydraulic motors to the source of pressurized fluid in the following manner:

the wheel drive motor for the rear wheel is connected in series to the fluid source and to the wheel drive motors for the front wheels; and

the wheel drive motors for the front wheels are connected to each other in parallel.

²
~~10.~~ A ^{mower} ~~vehicle~~ as recited in claim ¹~~9~~, wherein each of the wheels is provided with tires having substantially no tread to avoid marring or scuffing the surface of a golf green when the mower is used to mow such green.

³
~~11.~~ A ^{mower} ~~vehicle~~ as recited in claim ²~~10~~, wherein the engine is mounted on the rear of the frame generally above the rear wheel.

4
12. A ^{mower} ~~vehicle~~ as recited in claim ~~8~~¹, wherein a plurality of cutting units are carried on the front of the frame such that one cutting unit is located on the frame in advance of each front wheel.

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13. A ^{mower} ~~vehicle~~ as recited in claim ~~9~~¹, further including means operatively connected to the wheel drive motor for the rear wheel to allow such wheel to overrun the hydraulic motor driving such wheel when required during turns of the ~~vehicle~~^{mower}.

14. A ^{mower} ~~vehicle~~ as recited in claim ~~13~~⁵, wherein such overrunning means comprises a mechanical clutch operatively connected between a drive shaft of the wheel drive motor for the rear wheel and a wheel hub of the rear wheel.

15. A ^{mower} ~~vehicle~~ as recited in claim ~~14~~⁶, wherein the clutch unidirectionally transmits torque from the drive shaft to the rear wheel hub.

16. A ^{mower} ~~vehicle~~ as recited in claim ~~15~~⁷, wherein the clutch comprises at least one roller clutch bearing concentrically located inside the rear wheel hub.

~~17. A hydraulically driven vehicle having all wheel drive, which comprises:~~

(a) a frame having a power source thereon for supplying power;

(b) a plurality of ground engaging wheels attached to the frame for movably supporting the frame for movement over the ground, the wheels comprising a pair of front wheels carried adjacent a front end of the frame and a pair of rear wheels spaced on the frame from the pair of front wheels and carried adjacent a rear end of the frame; and

1 (c) ~~a hydraulic drive system for driving the~~
2 ground engaging wheels of the frame, which drive system
3 comprises:

4 (i) a source of pressurized fluid;
5 (ii) individual hydraulic drive
6 motors operatively engaged to each of the front ground
7 engaging wheels of the frame;

8 (iii) a single hydraulic drive motor
9 for driving the rear ground engaging wheels of the frame
10 through means forming a solid rear axle connection to the
11 rear wheels; and

12 (iv) means for connecting the
13 hydraulic motors to the source of pressurized fluid in the
14 following manner:

15 the wheel drive motor for the rear wheel is connected
16 in series to the fluid source and to the wheel drive motors
17 for the front wheels; and

18 the wheel drive motors for the front wheels are
19 connected to each other in parallel.

20
21 18. A vehicle as recited in claim 14, further
22 including means operatively connected to the rear wheels to
23 allow such rear wheels to overrun the rear axle means
24 driving such wheels when required during turns of the
25 vehicle.

26
27 19. A vehicle as recited in claim 10, wherein such
28 overrunning means comprises a mechanical clutch at each end
29 of the rear axle means operatively connected between each
30 end of the rear axle means and a wheel hub of the rear
31 wheel.

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33 a1 >

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